11. Santino

Program Name: Santino.java Input File: santino.dat

Kids these days are getting stranger and stranger. When they're not snap-sta-gramming or smoking Tide Pods, they're making up new playground games. Their latest game is called Hopscotch-plus-plus (abbreviated HPP).

HPP is played on a rectangular grid. Coordinates in the grid are 0-indexed, and are given row, then column, just like indexing matrices in Java. Each cell in the grid has an arrow, which points in one of the 8 cardinal or intercardinal directions (north, northeast, east, southeast, south, southwest, west, northwest). These are given by one or two letter abbreviations (N, NE, E, SE, S, SW, W, NW).

Santino starts in some cell and the students have marked some other cell as the goal. Santino can only jump in the direction given by the arrow in his current cell. Santino can also jump over squares, as long as the destination of his leap is in the direction of the arrow. For example, if the current cell says E, Santino can jump to any square in that row to the right of him in a single leap.

The object of the game is to reach the goal cell from a start cell in as few leaps as possible. Since these wacky kids are making bigger and bigger grids, Santino is worried he won't be able to leave the game and go to lunch. Help him figure out the fewest number of jumps needed.

Input: The first line is T ($T \leq 15$), the number of test cases to follow. The first line has 6 space separated integers. N M RS CS RE CE ($1 \leq N, M \leq 25$, $0 \leq RS, RE < N$, $0 \leq CS, CE < M$). The grid has N rows and M columns. Santino starts in (RS, CS) and can only exit once he reaches (RE, CE).

Output: For each test case, print the minimum number of hops Santino needs to make before he reaches the goal. If there is no way for Santino to reach the goal, print "Lost in the playground" (without quotes). Prefix every line with the case number, formatted like the samples.

Sample input:

```
3
4 4 0 0 3 3
E SW SW W
N S NE SW
NW SE SE N
NE NW E SW
2 3 0 1 1 0
S E S
W N NE
4 3 2 1 2 1
N NE S
SW E NW
W E SE
S E N
```

Sample output:

```
Case #1: 5
Case #2: Lost in the playground
Case #3: 0
```